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(54) **Methods for generating polynucleotides having desired characteristics by iterative selection and recombination**

(57) A method of producing a recombined polynucleotide having a desired characteristic, comprising:

- (a) providing a population of single-stranded nucleic acid fragments corresponding to a set of related-sequence polynucleotides, wherein the set of related-sequence polynucleotides comprises polynucleotides with non-identical sequences;
- (b) providing at least one template polynucleotide wherein the population of single-stranded fragments is capable of hybridizing to the at least one template polynucleotide;

- (c) hybridizing the population of single-stranded fragments to the at least one template polynucleotide and extending the hybridized fragments on the at least one template polynucleotide with a polymerase, thereby forming a plurality of sequence-recombined polynucleotides, said sequence-recombined polynucleotides comprising sequences from the set of related-sequence polynucleotides and sequences derived from the at least one template polynucleotide; and,
- (d) selecting or screening the sequence-recombined polynucleotides for the desired characteristic.

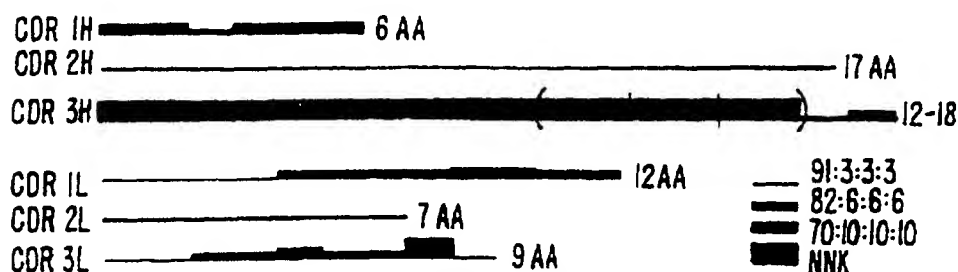
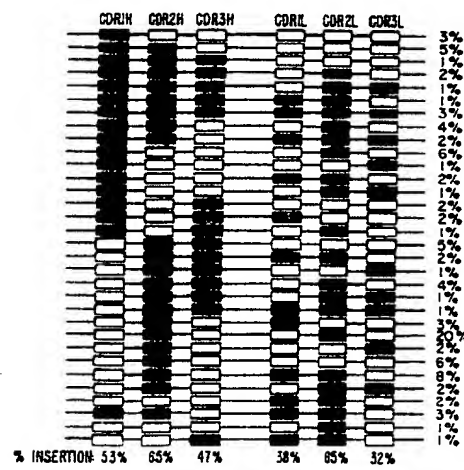
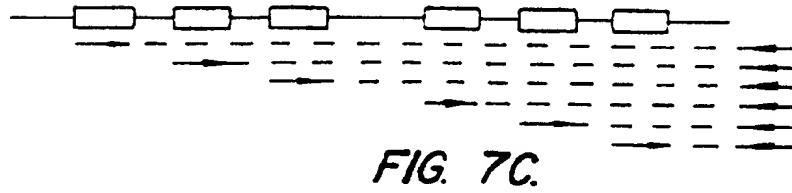
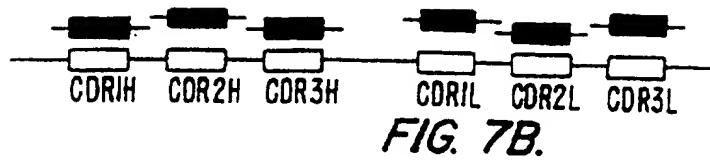


FIG. 7A.





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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 July 2001	Examiner Hornig, H
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<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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